Cyclamen Culture- Tami Van Gaal, GGSPro Technical Specialist

Proven versatility has expanded cyclamen use beyond the winter holidays to landscapes and combos. Appealing price points of smaller pots has also driven extended season sales. Regardless of the end use, growers should focus on three key areas during production: moisture management, fertility and temperature. Add disease prevention, and crops are well on the way to a beautiful finish.

Production Overview
Cyclamen varieties are grouped into four classes, with regular and novelty flower types in each. Cyclamen crop times are lengthy, 26-35 weeks by variety. Most growers reduce their crop time by 12-16 weeks by purchasing liners.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Flower Size</th>
<th>Recommended Pot</th>
<th>Weeks from sow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Large to extra large</td>
<td>5-6”</td>
<td>28-35</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Medium to large</td>
<td>4-5”</td>
<td>27-30</td>
</tr>
<tr>
<td>Miniature</td>
<td>Small to medium</td>
<td>3-4”</td>
<td>26-30</td>
</tr>
<tr>
<td>Micro</td>
<td>Small</td>
<td>2-3”</td>
<td>26-30</td>
</tr>
</tbody>
</table>

Liners should be transplanted prior to heavy rooting and petiole stretch. Transplant to maintain the same level of the corm as in the liner; do not bury or further expose the corm. Handle the liners with care, dibble the pots, and avoid forcefully pushing the root systems through the media.

For efficient bench use and best growth, space repeatedly during finishing. Begin with pot-to-pot spacing and space further when the leaves barely touch. Avoid crowding, which increases disease and diminishes plant form and quality.

Moisture Management
Greatly misunderstood, moisture management is a most important aspect of cyclamen production. Cyclamen roots are particularly sensitive to low oxygen levels, and nutrient uptake is relatively weak. Add growers’ healthy avoidance of water stress to cooler growing conditions, and it’s easy to understand why most cyclamen crops are grown too wet. Lighter, more frequent watering benefits the crop more than heavier, less frequent watering. Signs of media kept too wet include thick roots and few active, white root hairs. Instead, manage moisture to encourage continuous development of white, active roots.

Using coarse media to overcome wet growing can be problematic. Cyclamen roots need good contact with the media for adequate nutrient uptake. Overly coarse mixes actually lead to reduced nutrient
uptake. Twisting roots indicate media is too coarse. A well-drained peat/perlite blend with some coarse peat is a good choice. Bark mixes with bark content less than 30% and small bark particles will also grow good crops.

**Fertility**
Fertilizer choices for cyclamen should focus on calcium- and potassium-nitrate-based feeds with an N:K ratio of 1:2 and low phosphorus. Isolated, single applications of ammonium-based feed should be used only if leaf expansion or plant size is severely lacking.

During finishing, target media EC of 1.0 to 1.2 using 100-150 ppm N feed. Fertilizer EC should not exceed 1.5. Constant feeding is preferred to occasional feeding; avoid controlled release fertilizers. Maintain pH at 5.6-6.0.

Under warm day temperature (DT), >75°F, cyclamen growth stalls and nutrients needs drop. During this time, decrease fertilizer rates by 30-50% to avoid excessive leaf size and unfavorable habit.

Nutrient deficiencies can appear when conditions fail to support good transpiration and nutrient uptake (wet media, warm temps, high humidity). Watch for iron, calcium and boron deficiencies.

Shelf life is enhanced by continued feeding through shipping. Eliminating feed at the end of the crop will drive stem elongation, flower fade, and loss of form.

**Temperature and Light**
Cyclamen prefer cool conditions, with night temperature (NT) at 62-65°F for liners and 60-65°F for finishing (65°F early, low 60s later). Ideal DT should not exceed 68°F, with growth ceasing at temperatures above 80°F. Average daily temperatures (ADT) at or below 60°F will also stall growth. Hold crops at 50-55°F nearly indefinitely with slow, but continued, flower production.

Control of lighting for cyclamen serves to control leaf temperature. Light levels should be reduced to 4000-4400 fc in summer. During winter months, supplemental lighting will be beneficial if light levels fall below 2000 fc. Cyclamen are not photoperiodic; daylength manipulation is not necessary.

**PGRs**
Growth of cyclamen crops is best managed through control of moisture, fertility, spacing and light.

**Diseases and Pests**
*Please consult the GGSPRO Insecticide and Fungicide Options Bulletin for rates and other detailed information regarding effective treatments for all disease, insects and mite pests mentioned. The GGSPRO Team is available to discuss pesticide and biological control strategies.*

**Botrytis** is not uncommon during winter due to the dense plant canopy. Look for grey, fuzzy growth under the canopy. Flower damage shows as darkly pigmented areas or dark spotting on the petals. Remove spent leaves and flowers, reduce humidity, increase air flow, and balance media moisture with transpiration to avoid favorable conditions. Effective fungicides are available to be used in rotation.
Vascular disease caused by *Fusarium oxysporum* is more serious, though less common. Latent infections occur, with delayed expression as sudden leaf yellowing and wilt. On-site diagnosis involves slicing firm corms parallel and perpendicular to the soil surface: reddish/brown or purple/black discoloration indicates infection. Roots may appear healthy. Discard effected plants; no curative treatment exists. *Fusarium* spores are long-lived in soil and easily spread through water. Never reuse trays or pots for cyclamen, minimize splashing water and avoid heat/drought stress. Fungicides can be used to prevent the spread of *Fusarium*, but infected plants cannot be salvaged.

Bacterial in nature, *Erwinia* causes soft rot and rapid collapse. Attacking the crown, *Erwinia* softens the corm and generates an unpleasant odor. Immediately discard effected plants and preventively treat remaining plants with a bactericide labeled for *Erwinia*.

Two anthracnose diseases affect cyclamen. The less serious *Colletotrichum* causes small, brown spots on leaves. The more serious *Gleosporium* (*Cryptocline*) attacks young petioles, with distinctive drying and malformation of the young tissue. *Gleosporium* can also attack older tissue and flower buds, resulting in drying and distortion. Avoid leaf wetting and rotate labeled fungicides as needed.

*INSV* and *TMSV* occur in cyclamen. Watch for ring spots, mosaic patterns, atypical leaf coloration (yellow, bronze or brown) and distortion. Discard effected plants and control thrips, as they are the only means of transmitting these viruses.

**Pests**

Most common pests include *thrips, cyclamen mite, broad mite, fungus gnats* and *shoreflies*. Thrips can cause white streaking on flower petals. Cyclamen and broad mite cause severe distortion of young tissue, often evident at the corm level. Older leaves may malform with dry, brown areas. Flowers may twist on the petiole with browning and deformities. Always suspect cyclamen and broad mites when twisting and severe distortion is seen. Fungus gnats and shoreflies indicate that the crop is being grown too wet.